

REMARKS

Claims 1-5, 7-11, and 13-20 are pending in the application, of which Claims 1, 10, and 16 are independent. In the Office Action, Claims 1-5, 7-11, and 13-20 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. In addition, Claims 1-5 and 7-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. Claims 1, 2, 4, 5, 7-11, 13, and 15-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,283,033, issued to Dodrill, (hereinafter "Dodrill") in view of U.S. Patent No. 6,177,048, issued to Lagerstedt (hereinafter "Lagerstedt"). Further, Claims 3 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodrill in view of Lagerstedt, in further view of U.S. Patent No. 4,667,454, issued to McHenry (hereinafter "McHenry").

Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1-5, 7-11, and 13-20 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner points to the limitation recited in independent Claims 1, 10, and 16 wherein the pressure schedule comprises "a plurality of predetermined control pressure values, each control pressure value corresponding to a control temperature value included in the temperature schedule and being less than a theoretical pressure based on the corresponding control temperature value." The Examiner asserts that "the subject matter of the claims still requires further clarification as to how the control pressure within the vessel can be less than the theoretical pressure" and supports this assertion as follows:

Thus, although the actual control pressure could be lowered below the theoretical value, the theoretical pressure at that instant when the control pressure is reduced would also be adjusted so that the theoretical and control pressure would still be equal. Although it is understood that a

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

pressure regulator could reduce the pressure inside the vessel by removing air from the vessel, the theoretical pressure, as stated in the claims, would also have changed based on the presence of less air in the vessel, thus making the actual pressure in the vessel and the theoretical pressure equal. (Office Action at page 3).

Applicant notes that the specification, referring to TABLE II, defines the theoretical pressure in the vessel ("Ptot") as follows:

The third column, labeled "Pvapor," is the theoretical vapor pressure according to known steam saturation data for the corresponding temperature. The fourth column, labeled "Pair," is the theoretical partial air pressure within the vessel, *starting at 130°C to obtain 5.8 bar absolute pressure and corrected for pressure reduction according the general gas law, as a function of temperature.* The fifth column, labeled "Ptot," is the theoretical total pressure related to temperature, i.e., the sum of Pvapor and Pair. The sixth column, labeled "Pvessel," is the set point for pressure control in the vessel. (Emphasis added.) (Specification at page 7, lines 8-15.)

Claims 1, 10, and 16 are presently amended to recite that each pressure in the pressure schedule is "less than a theoretical total pressure related to temperature based on the corresponding control temperature value." As shown above, the value of the "theoretical total pressure related to temperature" is clearly defined in the specification as the sum of Pvapor and Pair, wherein Pair is "the theoretical partial air pressure within the vessel, starting at 130°C to obtain 5.8 bar absolute pressure and corrected for pressure reduction according the general gas law, as a function of temperature." Thus, applicant respectfully asserts that the theoretical total pressure related to temperature recited in presently amended Claims 1, 10, and 16 are defined such that changes in the amount of air inside the vessel are discounted. As a result, the theoretical total pressure related to temperature would not change due to the presence of less air in the vessel as asserted by the Examiner. Accordingly, applicant respectfully submits that one of ordinary skill in the art would be enabled by the teachings of the application as filed to practice the invention without undue experimentation.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

As further evidence that the claimed subject matter is fully enabled, enclosed is a Declaration pursuant to 37 C.F.R. §1.132 (Attachment A). In the Declaration, Mr. Gustaaf Persoons attests to the fact that one of ordinary skill in the art would be able to practice to claimed subject matter without undue experimentation. Mr. Persoons is the sole inventor of the claimed subject matter and has 35 years of professional experience with the development and design of automated equipment in the food industry. In the Declaration, Mr. Persoons explains how it is possible to control the pressure within the vessel to a "control pressure value being less than a theoretical total pressure related to temperature based on the corresponding control temperature value." Mr. Persoons further attests to the fact one of ordinary skill in the art, being aware of the properties of gasses and vapors in pressure vessels, would be able to practice the claimed subject matter without undue experimentation, based on the disclosure of the application as filed.

In view of the above-noted amendments, remarks, and Declaration (Attachment A), applicant respectfully submits that subject matter recited in Claims 1-5, 7-11, and 13-20 is fully enabled by the specification as filed. Accordingly, applicant respectfully requests that the rejection of Claims 1-5, 7-11, and 13-20 under 35 U.S.C. § 112, first paragraph, be withdrawn.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-5 and 7-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. In particular, the Examiner asserts that the limitation "the control temperature within the vessel" recited in Claim 1 lacks antecedent basis. Applicant respectfully submits that Claim 1, as presently amended, provides proper antecedent basis to the recited limitations. Accordingly, applicant respectfully requests that the rejection Claims 1-5 and 7-9 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-2, 4-5, 7-11, 13, and 15-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodrill in view of Lagerstedt. Further, Claims 3 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dodrill in view of Lagerstedt, in further view of McHenry.

Dodrill teaches controlling the temperature and pressure in the vessel according to a measured temperature and a calculated pressure inside the container. In the Office Action, the Examiner asserts that the control temperature (in the container) is "a basis for determining the control pressure for the vessel since it is used to calculate the pressure of the container." The Examiner further asserts that "this provides motivation to one having ordinary skill in the art that temperature and pressure values would have been calculated for the container, and thus the vessel, in order to determine the corresponding vessel temperature and pressure that would have prevented deformation of the package." Thus, the Examiner's position appears to rely on the proposition that measuring temperature and calculating pressure *inside the container* to determine a temperature and pressure schedule *in the vessel*, as taught by Dodrill, would naturally lead one of skill in the art to set temperature schedule and pressure schedule in the vessel in the manner of Claims 1-2, 4-5, 7-11, 13, and 15-20. Applicant respectfully disagrees.

Claim 1

In order to further distinguish Claim 1 from the teachings of Dodrill, as interpreted by the Examiner, Claim 1 is presently amended to more clearly recite that the control temperature and control pressure used to regulate the interior conditions of the vessel are "within the vessel and outside of the closed container." Thus, unlike Dodrill, which teaches controlling the vessel pressure according to a *measured temperature from inside the container*, the method of Claim 1 includes controlling the pressure within the vessel according to a "pressure schedule comprising

a plurality of predetermined control pressure values, each control pressure value corresponding to a control temperature value included in the temperature schedule and being less than a theoretical total pressure related to temperature based on the corresponding control temperature value," wherein the control temperature and a control pressure used to regulate the interior conditions of the vessel are "within the vessel and outside of the closed container."

Applicant respectfully submits that, when armed with the teachings of Dodrill, one of ordinary skill in the art would find no apparent reason to control the pressure within the vessel in the manner of Claim 1. More specifically, such a person would find no apparent reason to modify the pressure schedule of Dodrill so that each of the control pressure values (1) corresponds to a control temperature value within the vessel and outside of the closed container rather than a measured temperature value within the container, and (2) is less than a theoretical total pressure related to temperature based on the corresponding control temperature value within the vessel and outside of the closed container.

For at least the foregoing reasons, applicant respectfully submits that Claim 1 is allowable over a theoretical combination of Dodrill and Lagerstedt. Accordingly, applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. § 103(a) be withdrawn. If Claim 1 is allowed, then Claims 2-5 and 7-9, which depend therefrom, should also be allowed.

Claims 10 and 16

Similar to Claim 1, Claims 10 and 16 are presently amended to recite that the control temperature and a control pressure used to regulate the interior conditions of the vessel are "within the vessel and outside of the closed container." Thus, for at least the reasons cited with regard to Claim 1, applicant respectfully submits that Claims 10 and 16 are allowable over a theoretical combination of Dodrill and Lagerstedt. If Claim 10 is allowed, then Claims 11

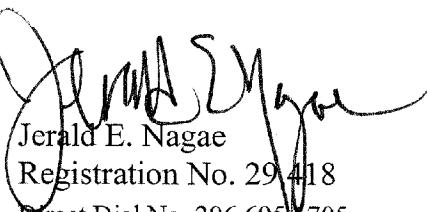
and 13-15, which depend therefrom, should also be allowed. Further, if Claim 16 is allowed, then Claims 17-20, which depend therefrom, should also be allowed.

Closure

In view of the foregoing amendments and remarks, applicant respectfully submits that Claims 1-5, 7-11, and 13-20 in condition for allowance. An early and favorable action allowing these claims is respectfully solicited. The Examiner is invited to contact the undersigned by telephone at 206.695.1705 with any questions or concerns regarding this matter.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{PLLC}



Jerald E. Nagae
Registration No. 29418
Direct Dial No. 206.695.1705

JEN:jlb/mgp

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: G. Persoons Attorney Docket No : FMCNV121470
Application No.: 10/621,190 Art Unit: 1761 / Confirmation No: 2343
Filed: July 15, 2003 Examiner: V.A. Thakur
Title: METHOD OF PROCESSING PAPERBOARD CONTAINERS

DECLARATION UNDER 37 C.F.R. 1.132 (ATTACHMENT A)

Seattle, Washington 98101

September 6, 2007

TO THE COMMISSIONER FOR PATENTS:

I, Gustaaf Persoons, declare:

1. I am the sole inventor of the subject matter claimed in U.S. Patent Application No. 10/621,190, filed July 15, 2003, titled "METHOD OF PROCESSING PAPERBOARD CONTAINERS."

2. My educational background includes a B.S. degree in Mechanical Engineering, 35 years of professional experience with the development and design of automated equipment for the food industry (mobile harvesters, fillers, can closers, continuous sterilizers and batch sterilizers), and several additional training courses (some examples: corrosion, lubrication, hygiene, safety, plastics, hydraulics, detergents, etc...). In 1979, I received the "Young Designer Award" from the American Society of Agricultural Engineers (ASAE).

3. My work history includes the following:

1968-69 FMC-StNiklaas: Draftsman

1969-70 Military Service

1970-71 FMC-StNiklaas: Standardization engineer

1971-73 FMC-StNiklaas: Project engineer

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206 682 8100

1973-79 FMC-StNiklaas: Managing project engineer
1979-85 FMC-StNiklaas: Sr Managing project engineer
1985-99 FMC-StNiklaas: Engineering manager
1999-07 FMC-StNiklaas: Technical Manager
2007- Present FMC StNiklaas: Technology Manager

4. It is well known in the art that the theoretical vapor pressure of steam at a known temperature can be determined from known steam saturation data, i.e. steam tables.

5. One of ordinary skill in the art would be able to calculate a theoretical partial pressure air pressure within a vessel by starting at a predetermined temperature and absolute pressure and then correcting for pressure reduction as a function of temperature according to the general gas law.

6. Pressure inside of a closed vessel may be controlled by a number of pressure regulators known in the art.

7. The general gas law (applicable to ideal gases) defines a close relationship between three physical factors for 1 kg of a particular gas : $P \cdot V = R \cdot T$. For a mass of 'm' kg of gas, the relationship is as follows: $P \cdot V = m \cdot R \cdot T$.

P: Absolute pressure of the gas

V: Volume of the gas

m: mass of the volume gas

T: Temperature of the gas

R: Gas constant for the gas

8. Assuming for the sake of simplicity that only gas is present, reducing pressure inside of a vessel by letting gas vent out of the vessel reduces the mass of the gas inside the vessel. The volume stays unchanged. If it is assumed that no heat exchange occurs between the

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CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{LLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206 682 8100

inside and the outside of the vessel, the temperature within the vessel also remains unchanged. As a result, only pressure is reduced.

9. For vapor, the vapor phase is in balance with the process water being at the same temperature. When vapor is released, a new balanced condition is established at a lower temperature (and hence a lower pressure) depending the amount of vapor released.

10. The above-noted properties of gases and vapor in pressure vessels would be known to one of ordinary skill in the art of food processing equipment.

11. The claimed method of processing paperboard containers cools down the process water (via an external heat exchanger) and controls the pressure in the vessel to be slightly below the theoretical total pressure corresponding with the process water temperature. Eventually, the pressure inside the paperboard and outside of the paperboard but inside the vessel will equalize; however, this equalization is not immediate. As a result, a positive pressure difference (at worst 0 bar) is maintained between the inside of the paperboard and the vessel.

12. One of ordinary skill in the art would be able to use the above-noted properties of gases and vapor in pressure vessels without undue experimentation to actively reduce the control pressure within a vessel according to a predefined pressure schedule and temperature schedule; wherein the pressure schedule comprises a plurality of predetermined control pressure values, each control pressure value corresponding to a control temperature value included in the temperature schedule and being less than a theoretical total pressure related to temperature based on the corresponding control temperature value.

13. In view of the foregoing, the application as filed would enable one of ordinary skill in the art to practice the claimed subject matter without undue experimentation.

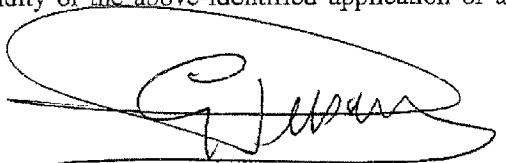
13. All statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206 682 8100

the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-identified application or any patent that issues therefrom.

Date

September 10, 2007



Gustaaf Persoons
FMC Technologies, Inc.

JEN:mdb